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EXAMINING LATINO FAMILY PARTICIPATION IN TREATMENT FOR CHILDHOOD
ADHD: THE ROLE OF CULTURAL FACTORS AND PERCEPTIONS

by

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Marquette University,
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the Degree of Doctorate of Philosophy

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ABSTRACT
EXAMINING LATINO FAMILY PARTICIPATION IN TREATMENT FOR CHILDHOOD
ADHD: THE ROLE OF CULTURAL FACTORS AND PERCEPTIONS

Theresa L. Kapke, M.S.

Marquette University, 2018

Attention-Deficit/Hyperactivity Disorder (ADHD) is a common mental health disorder in childhood, and efficacious treatments have been identified. Unfortunately, ethnic minority individuals, including Latino youth and their families, are at increased risk of failing to receive proper treatment and often exhibit poor treatment outcomes. Various factors likely contribute to these existing disparities. Thus, the current study aimed to improve current understanding of the way in which child characteristics and parental cultural factors and perceptions regarding treatment impact Latino family participation in a psychosocial intervention for childhood ADHD, including attendance, retention, engagement, and treatment response outcomes. Sixty-one Latino families participated in the current study, including 61 Latino youth and at least one of their primary parents and teachers. After receiving a comprehensive ADHD assessment, youth were randomly assigned to one of two treatment groups, both of which included eight parent management training sessions and a classroom intervention. Participants completed measures assessing child sociodemographic/diagnostic factors and parental cultural factors and perceptions. Assessments of family attendance, retention, engagement, and treatment response outcomes also were obtained. Results indicated that parental acculturation was related to attendance, retention, engagement, and treatment response outcomes, and mothers' attitudes regarding treatment and baseline severity of child symptomatology and functional impairment were related to treatment response outcomes. Results also indicated that higher levels of attendance, retention, and engagement were related to improved treatment response outcomes, although treatment engagement and baseline severity of child symptomatology appeared to be the most salient predictors in some cases. Implications and future directions are discussed.

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Introduction

Epidemiological studies suggest that Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most common mental health disorders in childhood, affecting approximately five percent of school-aged youth (APA, 2013). ADHD is a chronic condition that consists of developmentally inappropriate levels of inattention, hyperactivity, and/or impulsivity, which frequently lead to significant impairment in functioning across various settings, such as at home, school, and with peers (APA, 2013). Childhood ADHD is one of the most common causes for referral across different sectors, including mental health, pediatric, and school-based services (AAP, 2001; Pliszka, 2007). Many youth with ADHD also have comorbid mental health concerns and psychosocial difficulties, including disruptive behavior, learning and language difficulties, and internalizing and social problems (Pliszka, 2007). Early intervention for ADHD is crucial to promoting positive child and family outcomes (Ghuman, Arnold, & Anthony, 2008), especially since symptoms of ADHD typically persist into adulthood and often contribute to future functional difficulties (Biederman, Petty, & Faraone, 2012). Although efficacious treatments for childhood ADHD have been identified, including pharmacological and psychosocial treatments (i.e., parent management training [PMT] and classroom behavior management interventions; Chronis, Jones, & Raggi, 2006; Pelham & Fabiano, 2008; Pliszka, 2007), available research suggests that the majority of children and families who require mental health services do not receive them (Jensen et al., 1999; Kataoka, Zhang, & Wells, 2002a).

Ethnic minority populations, including Latino youth and their families, are especially unlikely to seek and receive mental health services, resulting in high rates of unmet need (Flores, 2010). Studies indicate that up to ninety percent of Latino youth ages six to seventeen who demonstrate a need for mental health services do not receive them (Kataoka, Zhang, & Wells, 2002b). Insufficient care for Latino families may be due to various factors, including negative interactions with health care providers due to communication difficulties, cultural barriers, and

stereotyped attitudes (Alegría & Woo, 2009; Alexandre, Martins, & Richard, 2009). These findings are alarming, especially since the Latino population is the largest and most rapidly growing ethnic minority group in the U.S., constituting nearly 25% of American children (Pew Hispanic Center, 2011; USCB, 2014). Better understanding of the factors that impact Latino family participation in mental health care and specifically ADHD treatment will help to address existing unmet mental health care needs, as well as lead to the development and promotion of more culturally responsive treatments for Latino youth and their families. Parental factors are of particular interest in the current study, given parents' unique role in initiating and sustaining participation in ADHD treatment. Thus, the current study aims to examine the way in which parental cultural factors (i.e., acculturation and ethnic identity) and perceptions (i.e., attitudes and expectations regarding therapy) influence Latino family participation (i.e., treatment retention, engagement, and response) in a psychosocial intervention designed for treating school-aged children with ADHD.

ADHD Service Utilization among Latino Youth in the U.S.

Existing research suggests that Latino youth demonstrate comparable higher rates of ADHD as compared to non-minority children, yet they are less likely than European American youth to be diagnosed (Bernardi et al., 2012; Bird et al., 2008; Morgan, Hillemeier, Farkas, & Maczuga, 2014; Pastor & Reuben, 2008). Given that receiving an ADHD diagnosis has been shown to predict future mental health service use, including contact with a mental health professional and regular health care visits (Leslie, Lambros, Aarons, Haine, & Hough, 2008; Pastor & Reuben, 2008), failure to diagnose ADHD in Latino youth contributes to decreased service utilization for Latino children and their families. Various factors likely contribute to the underdiagnosis of ADHD among Latino youth, including overreliance on caregiver reports of ADHD symptoms and provider bias (Eiraldi & Diaz, 2010). Although caregiver reports typically are utilized during the assessment process, they are subject to individual and cultural factors,

including knowledge of child mental health issues and varying cultural perceptions regarding child development (Gerdes, Lawton, Haack, & Schneider, 2013; Guevara, Mandell, Rostain, Zhao, & Hadley, 2006; Haack & Gerdes, 2011). Additionally, many of the behavior symptom checklists that are used have not been validated for use with the Latino population in the U.S. (Flores et al., 2002; Leslie et al., 2008; Pastor & Reuben, 2008), which help to explain why based on caregiver reports alone, studies indicate that Latino youth are less likely than non-Latino youth to be diagnosed with ADHD (Guevara et al., 2006). Health care providers may be less likely to conceptualize ADHD symptoms in ethnic minority children from a medical framework and may be more likely to attribute ADHD symptoms to be the result of poor parenting, lower IQ, substance use, and poverty (Kendall & Hatton, 2002).

With lower rates of diagnosis but similar prevalence of ADHD, many Latino youth do not receive appropriate treatment. Specifically, research demonstrates that Latino youth are less likely than non-Latino youth to receive medication and psychosocial treatments (Bauermeister et al., 2003; Eiraldi & Diaz, 2010). Given that many Latino caregivers do not consider medication to be an acceptable treatment for ADHD (Arcia, Fernández, & Jáquez, 2004; Eiraldi & Diaz, 2010), research suggests that Latino families may be more receptive to psychosocial treatments, yet these services are underutilized as well (Bauermeister et al., 2003; Eiraldi & Diaz, 2010; McCabe, 2002a; Reyno & McGrath, 2006). Despite the well-documented low rates of ADHD service use, it is important to note that Latino youth and their families should not be viewed as resistant to or unable to benefit from treatment. Rather, attention should be paid to the factors that influence accessibility and quality of services, including specific barriers to treatment and the need for culturally responsive interventions (Eiraldi & Diaz, 2010; Miranda, Lawson, & Escobar, 2002).

Overview of Latino Family Participation in Child Mental Health Services

Before examining some of the factors that impact Latino family participation in ADHD treatment, it is important to present an overview of the central components of family participation

in mental health services, including treatment attendance, engagement, and response. All health care utilization consists of both the identification and receipt of services (Cauce et al., 2002). Many Latino families also may seek support from informal sources (i.e., family members, friends, religious leaders, and folk healers; Cauce et al., 2002; Garland et al., 2005). However, the current study focuses on Latino family participation in formal mental health services and focuses on the receipt of services, as recent work has documented the need to explore factors that impact family participation in ADHD treatment (Corkum, Bessey, McGonnell, & Dorbeck, 2015).

Treatment Attendance and Retention. Various definitions of treatment retention have been used in the child mental health literature, yet most relate to treatment attendance and/or the degree of treatment completion, including the rate/percentage of individuals who complete or drop out of treatment prematurely (Barrett et al., 2008; Ingoldsby, 2010). Although this method provides valuable information, it fails to account for different speeds of recovery and other factors that contribute to premature termination, such as decreased need for therapy due to improvement in symptoms/functioning or structural barriers that impede attendance (Swift, Callahan, & Levine, 2009). Other studies have operationalized treatment retention according to whether the therapist was in agreement with a family's decision to terminate treatment or whether termination occurred before clinically significant change had been made (de Haan, Boon, de Jong, Hoeve, & Vermeiren, 2013; Swift et al., 2009). Although these definitions also provide valuable information, they fail to account for different perceptions of progress made toward treatment goals, as families may drop out of treatment once they have experienced a certain degree of relief, regardless of whether their formal treatment goals have been met (Barrett et al., 2008; Swift et al., 2009).

It is common for many youth and their families to drop out of mental health treatment before receiving the prescribed intervention. In fact, of the relatively small percentage of youth who seek mental health services, it is estimated that 30% to 75% of youth terminate treatment prematurely (Armbruster & Kazdin, 1994; Masi, Miller, & Olson, 2003). Unfortunately, there is

limited research on treatment retention for Latino youth and their families, especially in the context of ADHD (Knight, Roosa, Calderón-Tena, & Gonzales, 2009). However, studies indicate that Latino individuals generally are more likely than European American families to engage in early termination (Huey, 1998; La Roche, 2002; Miranda, Azocar, Organista, Muñoz, & Lieberman, 1996; Sue, 1998), which may lead to reduced treatment effectiveness (Barrett et al., 2008). For example, a recent study found that youth who terminated treatment prematurely demonstrated significantly higher levels of impairment in social functioning, disruptive behavior, and affective problems, as compared to those who completed treatment successfully (Rich et al., 2014).

Treatment Engagement. Similar to treatment retention, treatment engagement also has not been defined consistently in the literature (Staudt, 2007). Although many studies have relied on rates of attendance in examining treatment engagement, recent studies emphasize the importance of assessing other aspects of treatment engagement, including homework completion and medication adherence (Becker et al., 2015; Haine-Schlagel & Walsh, 2015; Ingoldsby, 2010). In fact, researchers suggest that attendance no longer is considered to be a sufficient measure of treatment engagement (Becker et al., 2015), especially since other engagement-related factors may be better predictors of treatment outcomes (Nock & Kazdin, 2005; Staudt, 2007). For example, a recent study examining treatment engagement in PMT, as measured by parental attendance and therapist ratings of quality of participation, found that quality of parental participation, not attendance, predicted changes in parenting behavior (Nix, Bierman, & McMahon, 2009).

Additionally, available studies suggest that ethnic minority families, especially those from low SES backgrounds, demonstrate poorer engagement and compliance in child therapy services than European American youth (McCabe, 2002a; Reyno & McGrath, 2006). Therefore, the effects of pre-treatment factors, such as socioeconomic factors and parental stress, must be taken into account, as they may be associated with the quality of treatment participation (Nix et

al., 2009; Nock & Kazdin, 2005). However, researchers also theorize that limited understanding of the way in which cultural and family system factors impact family participation in mental health services may contribute to lower levels of engagement among Latino families (Forehand & Kotchick, 1996, 2002). Interestingly, higher levels of treatment engagement among families participating in child mental health services have been associated with improved treatment outcomes for children and their families (Baydar, Reid, & Webster-Stratton, 2003; Garvey, Julion, Fogg, Kratovil, & Gross, 2006; Nix et al., 2009).

Treatment Response. Researchers suggest that treatment response is another important, multifaceted aspect of participation in mental health services (De Los Reyes & Kazdin, 2005; Hoagwood et al., 2012; Kazdin & Crowley, 1997). Historically, many studies have assessed treatment response according to the reduction of mental health symptoms (e.g., David-Ferdon & Kaslow, 2008; Pelham & Fabiano, 2008), for which parent and teacher ratings of child behavior commonly are utilized (Kazdin & Crowley, 1997). Use of multi-informant ratings may be especially important when examining treatment response among Latino youth, as research suggests that caregiver reports of symptoms may be subject to cultural and individual factors (Eiraldi & Diaz, 2010; Guevara et al., 2006; Haack & Gerdes, 2011). Although symptom reduction represents an important component of treatment response, it often is not necessarily a primary goal for therapy. For example, Pelham and Fabiano (2001) argue that functional impairment associated with ADHD, as opposed to symptomatology, is what often motivates families to seek services. Thus, improvements in functioning may be more appropriate indicators of treatment response, such as increased attention and engagement in the school setting, compliance in the home setting, and positive social interactions.

Factors that Influence Latino Family Participation in Child Mental Health Services

Various factors have been found to predict participation in ADHD treatment in the general population. In fact, a recent review examining factors related to family participation in

ADHD treatment identified four treatment barrier categories, including child characteristics (i.e., sex, age, SES, ethnicity, and comorbidity), parental perceptions of treatment (i.e. treatment acceptability and stigma), parental perceptions of ADHD (i.e. ADHD knowledge, perceived severity and causation), and structural barriers (i.e., financial burden and system barriers; Corkum et al., 2015). Research demonstrates that child sex, age, severity of ADHD symptoms, comorbidity, and SES predict ADHD treatment results, such that females, younger children, and those with lesser severity of symptoms and higher SES demonstrate improved treatment adherence and response (Corkum et al., 2015; Reyno & McGrath, 2006). Existing studies on the relationship between comorbid diagnoses and ADHD treatment engagement have demonstrated mixed findings (e.g., Graetz, Sawyer, Baghurst, & Hirte, 2006; Thiruchelvam, Charach, & Schachar, 2001).

Although the review conducted by Corkum and colleagues (2015) provides valuable information on the factors that contribute to child participation in ADHD treatment, it is unclear as to how these factors extend to Latino families in the U.S., a population with unique health care accessibility and utilization needs. Additionally, much of the available literature centers on pharmacological treatment outcomes and fails to distinguish between the different aspects of treatment participation, including engagement and retention (Corkum et al., 2015). Thus, more research is needed to examine and distinguish the factors that affect different components of Latino family participation in psychosocial treatments for ADHD.

Parental Cultural Factors: Acculturation and Ethnic Identity. Given that nearly 40% of Latino individuals in the U.S. are foreign-born (USCB, 2014) and over half of Latino youth in the U.S. are children of immigrant parents (Fry & Passel, 2009), cultural factors must be considered when examining Latino family participation in mental health treatment for ADHD. Parental cultural variables are of particular interest in the current study, as parents play a major role in psychosocial treatment for childhood ADHD. Acculturation, one of the major cultural concepts that has been considered, is the process that occurs when individuals from different

cultural backgrounds interact with each other and often produces changes to individuals' behavior, beliefs, and values related to their ethnic culture of origin and/or host culture (Marín, 1992; Schwartz, Unger, Zamboanga, & Szapocznik, 2010). Acculturation is considered to be a multidimensional process that includes both behavioral and cognitive components, including one's unique cultural practices, values, and identifications (Schwartz et al., 2010). Regarding acculturation and health care utilization, most studies have found that greater orientation to U.S. mainstream culture is associated with increased service use (Lara, Gamboa, Kahramanian, Morales, & Bautista, 2005). Similarly, greater length of residence in the U.S. and English language use, both of which have been used as proxy measures of acculturation, are positively related to a higher degree of mental health service use (Keyes et al., 2012; Nandi et al., 2008). Researchers theorize that these findings likely indicate a greater level of integration into U.S. mainstream society and increased knowledge about the health care system in the U.S. (Nandi et al., 2008). However, the few existing studies examining Latino caregiver acculturation status and youth mental health service utilization present mixed findings (e.g., Ho, Yeh, McCabe, & Hough, 2006; Kim, Lau, & Chorpita, 2015; McCabe, 2002a), results of which likely are confounded by the various ways in which acculturation was operationalized.

Ethnic identity, a related multifaceted construct, has been linked to participation in mental health services as well and refers to the sense of identification with and belonging to one's ethnic community and culture of origin. It is thought to consist of both exploration and commitment processes, including individuals' interest in obtaining knowledge of and personal investment in their ethnic culture of origin (Phinney & Ong, 2007). Although ethnic identity has been linked to various psychological benefits for Latino individuals (Quintana & Scull, 2009), it may have differential effects on service utilization. For example, a recent study found that individuals reporting strong Latino ethnic identity were less likely to use mental health services for mood and anxiety disorders, even after controlling for other factors that are thought to influence service utilization, such as insurance, income, and severity of symptoms (Keyes et al.,

2012). These results suggest the importance of examining both acculturation and ethnic identity in studying Latino individuals' participation in mental health services, and more research is needed to determine the way in which these factors impact Latino family participation in mental health treatment for childhood ADHD specifically.

Parental Perceptions: Attitudes and Expectations Regarding Treatment. In addition to parental cultural factors, it is helpful to specifically examine parental perceptions regarding mental health and treatment, as these may impact Latino family participation in mental health services as well. In the case of ADHD, researchers suggest that parental cognitions (i.e., beliefs about ADHD, parental efficacy, and perceptions regarding child behavior and mental health treatment) impact family participation in child mental health services (Hoza, Johnston, Pillow, & Ascough, 2006). Stigmatized attitudes among parents have been identified as a major barrier to ADHD service utilization (Corkum et al., 2015), and mental health stigma may be particularly salient for Latino families. For example, studies indicate that ethnic minority individuals are likely to endorse mental health stigma, mistrust of health care providers, and a belief that problems should be handled within the family, all of which contribute to a decreased likelihood of seeking mental health services (Alvidrez, 1999; Corrigan & Watson, 2007; Nadeem et al., 2007; Ojeda & McGuire, 2006; Thompson, Bazile, & Akbar, 2002; Villatoro, Morales, & Mays, 2014). Research suggests that caregivers from ethnic minority backgrounds may hesitate to seek ADHD treatment for their children due to fears about the way that they may be perceived if their child receives a diagnosis or demonstrates behaviors that are consistent with ADHD. For example, Latino mothers of children with disruptive behaviors have been shown to experience high levels of self-blame and perceived stigma from their communities, which may lead to low levels of parenting efficacy and limited social interactions (Fernández & Arcia, 2004). Stigmatized attitudes and lack of knowledge related to childhood ADHD have been linked to the underutilization of mental health services in U.S. mainstream society as well. According to findings from a nationally representative survey on attitudes towards common childhood mental

health disorders, ADHD often is not perceived to be a serious mental health problem that warrants treatment (Pescosolido et al., 2008).

In addition to stigmatized attitudes, specific expectations regarding treatment may have implications for participation in mental health care treatment as well. Given various sociodemographic factors, including English language proficiency, many Latino families may have limited knowledge, resources, and experience related to use of formal mental health services in the U.S., which may influence parental expectations regarding length of treatment, speed of recovery, and parental engagement (Gazmararian, Curran, Parker, Bernhardt, & DeBuono, 2005; McCabe, 2002a). If parental expectations regarding treatment are incongruent with that of the health care provider or system at-large, challenges related to treatment participation may arise. Thus, more research is needed to determine potentially conflicting expectations regarding therapy. Other systemic barriers related to receipt of ADHD treatment have been identified, including parental perceptions of financial burden of treatment, lack of time, lack of insurance, and long waiting lists (Corkum et al., 2015), but less is known regarding Latino families specifically.

Current Study

Although existing research provides a good foundation for understanding barriers related to child mental health services in the U.S., information related to the development and progress of ADHD treatment among Latino youth is scarce, and little is known about effective psychosocial treatment of ADHD in Latino families (Eiraldi & Diaz, 2010; Gerdes, Kapke, Lawton, Grace, & Hurtado, 2015). Improved understanding of the factors that impact Latino family participation in mental health services is crucial to addressing existing mental health disparities and identifying ways to improve existing services. The current study aimed to contribute to this area of research by providing knowledge about the way in which parental cultural factors (i.e., acculturation and ethnic identity) and perceptions (i.e., attitudes and expectations regarding treatment) impact

Latino family participation in a psychosocial intervention for childhood ADHD. Additionally, the current study integrates a modern conceptualization of family participation in treatment for childhood ADHD and provides valuable information on the factors that predict different aspects of Latino family participation in mental health services, including attendance, retention, engagement, and treatment response outcomes.

First, it was hypothesized that after accounting for treatment condition and child sociodemographic/diagnostic factors that were significantly associated with family participation in mental health services (i.e., child sex, age, severity of ADHD symptoms, comorbidity, and SES), greater orientation to Latino culture on measures of acculturation and higher levels of ethnic identity among parents would predict poorer levels of attendance, retention, engagement, and treatment response outcomes. However, greater orientation to U.S. mainstream culture on measures of acculturation and lower levels of ethnic identity among parents would predict improved levels of attendance, retention, engagement, and treatment response outcomes. Similarly, it was hypothesized that after accounting for significant treatment condition and child sociodemographic/diagnostic variables, greater endorsement of specific parental attitudes and expectations regarding treatment (i.e., belief that problems should be handled within the family unit, stigmatized attitudes related to mental health treatment, perceived barriers to treatment, and expectations for a speedy recovery in treatment) would predict decreased levels of attendance, retention, engagement, as well as poorer treatment response outcomes. Finally, it was hypothesized that after accounting for significant treatment condition and child sociodemographic/ diagnostic variables, increased levels of attendance, retention, and engagement in treatment would predict improved treatment response outcomes. Engagement was expected to account for more of the variance in treatment response outcomes than attendance and retention.

Method

Participants

Based on multicultural guidelines for promoting participation of Latino families in research (e.g., NIH, 2002; Yancey, Ortega, & Kumanyika, 2006), partnerships were established with local schools and a community center predominantly serving Latino families in an urban setting. In-person recruitment took place with families, teachers, and school personnel during various school-sponsored events (i.e., orientation, parent-teacher conferences, parent and teacher meetings), as well as school announcements, mailings, and word-of-mouth referral. Partnerships also were established with health care providers (i.e., pediatricians, psychologists, and social workers) from a local community health center, who helped to identify eligible families.

Participants for the current study included Latino youth between the ages of five and thirteen years who were assessed for ADHD as part of a larger research project (see Gerdes, Kapke, Grace, & Castro, 2017) and at least one of their primary parents and teachers. Throughout the course of the current study, 74 families were consented and assessed. Of those, 10 families did not meet criteria for ADHD, one family met exclusion criteria, and two families were unable to finish the assessment. Thus, 61 families participated in the current study, including 61 Latino youth (44 males, 17 females) reporting a mean age of 7.98 years ($SD = 2.57$), 60 mothers and 26 fathers reporting a mean parental age of 37.26 years ($SD = 7.29$), and 61 teachers. Approximately 20% of participating youth were taking medication to manage their symptoms of ADHD throughout the course of the assessment and intervention. Nearly 90% of parents identified themselves as being of Mexican descent. Families varied with regards to socioeconomic characteristics (e.g., education and income) and cultural characteristics (e.g., primary language and time in the U.S.). See Table 1 for more information.

Table 1
Parent, Family, and Child Demographics

Parent and Family Factors			Child Factors		
Age, <i>M</i> (SD)	37.26	(7.29)	Age, <i>M</i> (SD)	7.98	(2.57)
Sex, <i>n</i> (%)			Sex, <i>n</i> (%)		
Female	60	(69.77)	Female	17	(27.87)
Male	26	(30.23)	Male	44	(72.13)
Education, <i>n</i> (%) ⁺			Grade level, <i>n</i> (%)		
Some high school or less	52	(60.47)	Kindergarten	13	(21.31)
Graduated high school/GED	17	(19.77)	Elementary (1 st - 5 th grade)	36	(59.02)
Some college	11	(12.79)	Middle school (6 th – 8 th grade)	12	(19.67)
College or graduate degree	4	(4.65)	ADHD Subtype, <i>n</i> (%)		
Ethnicity, <i>n</i> (%)			Inattentive only	26	(42.62)
Latino, Mexican descent	76	(88.37)	Hyperactive/impulsive only	7	(11.48)
Latino, Puerto Rican descent	4	(4.65)	Combined	28	(45.90)
Latino, Other descent	6	(6.98)	Comorbid diagnoses		
Language, <i>n</i> (%)			None	43	(70.49)
Only Spanish	38	(44.19)	ODD/CD	14	(22.95)
Primarily Spanish, some English	29	(33.72)	Mood/anxiety	4	(6.56)
Primarily English, some Spanish	2	(2.33)	Medication Status, <i>n</i> (%)		
Bilingual	17	(19.77)	Medicated	12	(19.67)
Time in U.S., <i>n</i> (%)			Unmedicated	49	(80.33)
1-5 years	1	(1.16)	Type of Treatment, <i>n</i> (%)		
6-10 years	17	(19.77)	Standard treatment	30	(49.18)
More than 10 years	63	(73.26)	Culturally-adapted treatment	31	(50.82)
Born in U.S.	5	(5.81)	Retention, <i>n</i> (%)		
Family Structure, <i>n</i> (%)			Yes	58	(95.08)
Married/cohabitating parents	42	(68.85)	No	3	(80.33)
Separated/divorced/widowed	16	(26.23)	Referral Source, <i>n</i> (%)		
Single/never married	3	(4.92)	Health care provider referral	13	(21.31)
Family SES, <i>M</i> (SD)	23.43	(11.13)	School referral	26	(42.62)
			Self-referral	22	(36.07)

Note. *n* = 61 families, including 61 youth, 60 mothers, and 26 fathers.

⁺ Indicates missing data for some participants.

Procedure

Interested families contacted the study team, after which an initial phone screen was conducted to determine study eligibility. In order to participate in the current study, the parent(s) and participating child had to self-identify as Latino, and the parent(s) had to be Spanish-speaking. Participating children had to be between the ages of five and thirteen years and display symptoms and functional problems consistent with ADHD. Children with existing diagnoses of intellectual disability, autism spectrum disorder, and/or a psychotic disorder were excluded from

the study. Once eligibility was determined, a comprehensive, multi-modal, multi-informant ADHD assessment was conducted at a university-based clinic or local community center, depending on the family's preference of location and availability. The ADHD assessment took approximately four hours to complete, including parent, child, and teacher components. The parent component was completed in Spanish; the child component was completed in English or Spanish, depending on the child's language preference; and the teacher component was completed in English.

After obtaining informed consent and assent from the participating parent(s) and child, the graduate clinician completed an unstructured interview with the parent(s) in order to gather background information and identify home-based treatment goals. The graduate clinician conducted the Disruptive Behavior Disorders (DBD) Structured Interview with the parent(s), which is a semi-structured diagnostic interview that expands on the 45 items that are included in the DBD Rating Scale and obtains additional evidence of symptoms across various settings. The parent(s) also completed questionnaires assessing ADHD symptomatology and functional impairment, parent and child demographic information, parental cultural factors (i.e., acculturation and ethnic identity), and parental perceptions (i.e., attitudes and expectations regarding treatment). The child completed self-report measures of anxiety and depression. Measures relevant to the current study are described below. All of the parent questionnaires were completed in Spanish, and assistance from bilingual graduate research assistants was available upon request. Each family received a \$100 Target gift card once they completed the interviews and measures. As part of the assessment, the graduate clinician obtained the name and contact information for the child's primary teacher and contacted the child's teacher and arranged a date and time to meet at the school. After obtaining consent from the teacher, an unstructured interview was conducted with the teacher in order to identify school-based treatment goals, and the teacher completed questionnaires assessing ADHD symptomatology and functional

impairment. Each teacher received a \$5 Target gift card once he/she had completed the interview and measures.

Based on the information that was obtained during the assessment, including parent and teacher unstructured interviews and ratings of symptomatology and functional impairment across settings, and behavioral observations, diagnostic determinations were made by graduate student clinicians and a faculty expert on ADHD. If the child met criteria for ADHD based on the comprehensive, multi-modal, multi-informant assessment, the child's family was eligible to participate in the second phase of the study, which included a psychosocial intervention designed for treating school-aged children with ADHD (see Gerdes et al., 2015; 2017 for more detail). Families were randomly assigned to participate in one of two treatment groups, both of which included eight PMT classes and a school-based intervention in the form of a Daily Report Card (DRC). One treatment was standard treatment (ST), and the other was a culturally-adapted treatment (CAT), which included cultural adaptations related to the structure and content of treatment sessions and practical changes aimed at decreasing barriers to treatment (see Gerdes et al., 2016 for more detail on the development of CAT). Classes were co-led by a graduate student clinician and a social worker from the local community center and focused on topics such as establishing the DRC system, use of positive reinforcement, strategies to manage noncompliance and disruptive behavior, and techniques to improve completion of routines in the home setting. The participating parent(s) attended weekly, group-based PMT sessions, which took place for approximately two hours/week, as well as meetings at the school to discuss the DRC intervention with the child's primary teacher. Families participating in CAT also received two 30-minute home visits throughout the course of treatment. At the end of treatment, the participating parent(s) and teacher completed questionnaires assessing ADHD symptomatology and functional impairment. Each family received a \$100 Target gift card once they completed the questionnaires; each teacher received a \$5 Target gift card.

Measures

Measures of interest for the current study include the DBD Rating Scale, ADHD-FX Scale, Acculturation Rating Scale for Mexican Americans-II (ARSMA-II), Mexican American Values Scale for Adolescents and Adults (MACVS), Multigroup Ethnic Identity Measure-Revised (MEIM-R), Therapy Attitudes Questionnaire (TAQ), Therapy Expectations Questionnaire (TEQ), and a demographic questionnaire. Information regarding the way in which attendance, engagement, and treatment response were assessed is included below. Reliability statistics for measures used in the current study are presented in Table 2, including Cronbach's alphas and Pearson correlations for the 2-item TEQ speed of recovery subscales.

DBD Rating Scale (Pelham, Gnagy, Greenslade, & Milich, 1992; Spanish translation by Gerdes, Lawton, Haack, & Hurtado, 2013). The DBD Rating Scale is a 45-item parent- and teacher-report measure that was used to assess ADHD symptomatology. The DBD Rating Scale assesses symptoms of ADHD, Oppositional Defiant Disorder, and Conduct Disorder and is based on DSM-IV-TR symptoms of ADHD. Responses are based a 4-point scale, ranging from 0 (not at all present) to 3 (very much present), with higher scores indicate greater symptomatology. Sample items assessing symptoms of inattention, hyperactivity, and impulsivity include: “[child] often does not seem to listen when spoken to directly,” “[child] often fidgets with hands or feet or squirms in seat,” and “[child] often blurts out answers before questions have been completed.” Research demonstrates that the English and Spanish versions of the DBD Rating Scale maintain good reliabilities (Gerdes, Lawton, Haack, & Hurtado, 2013; Pelham, Fabiano, & Massetti, 2005). For purposes of the current study, parents completed the Spanish version of the DBD Rating Scale, and teachers completed the English version. Pre-treatment mean scores for total ADHD symptoms (i.e., inattention and hyperactive/impulsivity) were utilized from both parent and teacher versions of the DBD to assess symptom severity, and post-treatment parent- and teacher-reported mean scores for total ADHD symptoms were utilized to assess symptomatology

post-treatment. Pre-treatment responses include ratings of the child's unmedicated behavior, and post-treatment responses reflect either medicated or unmedicated ratings, depending on child's ADHD medication status.

ADHD-FX Scale (Haack, Gerdes, Lawton, & Schneider, 2014). The ADHD-FX Scale is a 32-item parent- and teacher-report measure that was used to assess ADHD functional impairment at home, school, and with peers. Using a 4-point scale that ranges from 0 (no effect) to 3 (a lot of effect), the ADHD-FX Scale assesses the extent to which functional problems affect the child in his/her daily life, with higher scores representing greater levels of functional impairment. Sample items assessing functional impairment at home, school, and with peers include: "[child] doesn't effectively complete home routines/tasks," "[child] doesn't pay attention to, follow, and/or obey teacher instructions," and "[child] is ignored, rejected, and/or teased by peers." Research demonstrates that the English and Spanish versions of the scale maintain good reliability and consistency (Haack, Gonring, Harris, Gerdes, & Pfiffner, in press). Mean scores for functional impairment at home, school, and with peers may be computed, as well as a total functional impairment score. Parent-report of functional impairment at home and teacher-report of functional impairment at school were used in the current study, as each reflects what the parent and teacher are likely to observe in their respective settings. Pre-treatment scores were utilized to assess severity in child's functional impairment, and post-treatment scores were utilized to assess functional impairment post-treatment. Pre-treatment responses include ratings of the child's unmedicated behavior, and post-treatment responses reflect either medicated or unmedicated ratings, depending on the child's ADHD medication status.

ARSMA-II (Cuellar, Arnold, & Maldonado, 1995). The ARSMA-II is a 30-item self-report measure that was used to assess parents' behavioral acculturation status related to Latino and U.S. mainstream cultures. Using a 5-point scale that ranges from 1 (not at all) to 5 (extremely or almost always), the ARSMA-II largely assesses behavioral aspects of acculturation, including language preference, customs, and ethnic background of one's family members and friends. The

ARSMA-II can be used to compute mean scores for the Latino Orientation Scale (LOS) and the Anglo Orientation Scale (AOS), with higher scores indicating greater orientation to the respective culture. The current study modified the ARSMA-II by substituting “Latino” for “Mexican” or “Mexican American,” a modification that has been used in other studies (Steidel & Contreras, 2003). Sample items for the LOS and AOS scales include: “I associate with Latinos and/or Latino Americans” and “my thinking is done in the English language.” The ARSMA-II has demonstrated good internal and test-retest reliabilities (Cuellar et al., 1995).

MACVS (Knight et al., 2010). The MACVS is a 50-item self-report measure that was used to assess parents’ cognitive acculturation status. Using a 5-point scale that ranges from 1 (not at all) to 5 (completely), the MACVS assesses values that are frequently associated with Latino and U.S. mainstream culture, including familism, respect, religion, traditional gender roles, material success, independence, and personal achievement. The MACVS can be used to compute mean scores for the Mexican American Values Scale (MAV) and the Mainstream Values Scale (AV), with higher scores indicate greater endorsement of cultural values. Sample items from the MAV and AV scales include: “it is always important to united as a family” and “the most important thing parents can teach their children is to be independent from others.” The MAV and AV scales have demonstrated good internal consistency for adult, with Cronbach’s alphas of .84-.87 and .79, respectively (Knight et al., 2010).

MEIM-R (Phinney & Ong, 2007). The MEIM-R is a 6-item self-report measure that was used to measure parents’ ethnic identity. Using a 4-point scale that ranges from 1 (strongly disagree) to 4 (strongly agree), the MEIM-R assesses aspects of one’s ethnic identity, including exploration and commitment. Mean scores for the exploration and commitment subscales can be computed, as well as a total score of ethnic identity, which was used in the current study. Higher scores indicate greater levels of agreement with the statements related to one’s ethnic identity. Sample items for the exploration and commitment subscales, respectively, include: “I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs”

and “I have a strong sense of belonging to my own ethnic group.” The MEIM-R has demonstrated good reliability for the exploration and commitment subscales, as well as the overall measure, including Cronbach’s alphas of .76, .78, and .84, respectively (Phinney & Ong, 2007).

TAQ (McCabe, 2002b). The TAQ is a self-report measure that was used to assess parents’ attitudes regarding therapy. The TAQ can be used to compute mean subscale scores for four constructs, including family/self-reliance, guilt feelings, reliance on discipline, and stigma. Using a 5-point scale that ranges from 1 (strongly disagree) to 5 (strongly agree), higher scores indicate greater levels of agreement with the statements related to one’s attitudes regarding therapy. The current study utilized the four-item family/self-reliance and five-item stigma subscales, which reflect the beliefs that children’s problems do not require outside help and that seeking child mental health services is shameful. Sample items for the family/self-reliance and stigma subscales include: “all of children’s emotional or behavior problems can be resolved within the family” and “I would feel ashamed to talk with a therapist about my child’s emotional or behavior problems.” These subscales have demonstrated good reliabilities, with Cronbach’s alphas of .81 and .70, respectively.

TEQ (McCabe, 2002c). The TEQ is a self-report measure that was used to assess parents’ expectation regarding therapy. The TEQ can be used to compute mean subscales scores for three constructs, including directiveness, perceived barriers to therapy, and speed of recovery. Using a 5-point scale that ranges from 1 (strongly disagree) to 5 (strongly agree), higher scores indicate greater levels of agreement with the statements related to one’s perceptions of what to expect in therapy. The current study utilized the 9-item perceived barriers and the 2-item speed of recovery subscales, for which sample items include: “I am concerned that I will not be able to afford therapy” and “if my child does not get better after a few sessions, then treatment is not working.” These subscales have demonstrated adequate reliabilities, including Cronbach’s alphas of .78 and .69, respectively.

Demographic questionnaire. A demographic questionnaire was administered to parents to collect demographic information about each participating parent and child, including age, sex, and SES. SES was assessed using the Hollingshead Four Factor Index of Social Status (Hollingshead, 1975), which considers one's marital status, employment status, education, and occupation in determining SES. In the current study, family SES ranged from 8-58, with higher values indicating higher SES.

Treatment attendance and retention. Attendance was measured according to number of PMT sessions attended by parents. Treatment retention was defined as family completion of the last scheduled session/class.

Treatment engagement. Engagement was assessed by 1) homework completion and 2) therapist-ratings of engagement. A total mean percentage of completion on various homework items was calculated for each child. Homework completion was based on specific homework assignments (e.g., bringing DRCs and compliance tracking sheets to session, providing DRC rewards in the home setting, and providing consistent consequences in the home setting), all of which were related to specific strategies and behavioral management techniques that were reviewed throughout the course of the treatment. Regarding therapist-ratings of engagement, both therapists rated the participating parent(s)'s level of engagement at the end of treatment on a 5-point scale of 1 (very low) to 5 (very high). Given that the therapists' ratings were highly correlated ($r = .76, p \leq .001$), a mean therapist rating engagement score for participating parent(s) was then computed for each family.

Treatment response. Treatment response was assessed by 1) post-treatment ratings of symptomatology and functional impairment, 2) therapist ratings of treatment response, and 3) progress towards treatment goals. Post-treatment scores on the DBD Rating Scale and the ADHD-FX Scale were used to assess symptomatology and functioning impairment following treatment after controlling for pre-treatment levels. Regarding therapist-ratings of treatment response, both therapists rated the participating child's improvement related to behavior and

functioning and the participating parent(s)'s improvement related to parent/family functioning at the end of treatment on a 5-point scale of 1 (none) to 5 (substantial gains). Given that the therapists' ratings for improvements in child and parent/family functioning were highly correlated ($r = .69, p \leq .001$; $r = .67, p \leq .001$, respectively), mean treatment response scores then were computed for the participating child and parent(s).

Additionally, based on the comprehensive ADHD assessment that was completed at baseline, approximately 5-6 treatment goals were established for each participating child, including home- and school-based goals, such as compliance and routines specific to each setting. The percentage of treatment goals that were met were then calculated for each child. Regarding the compliance and school-based goals, successful attainment of the child's treatment goal was defined as 100% improvement, which was determined to be a reasonable amount of improvement for the child to obtain in the course of an eight-week treatment. For example, if a child demonstrated 40% compliance at the beginning of treatment, his/her treatment goal would be at least 80% compliance by the end of treatment. Similarly, if a child required an average of at least four reminders from the teacher to stay on-task during reading, the child was expected to be able to stay on-task during reading with an average of two or fewer reminders by the end of treatment. Progress towards goals related to routines in the home setting (i.e., homework routine and morning/bedtime routines) also was assessed throughout the course of treatment with a rating scale that was completed by the participating parent(s) at the beginning of each PMT session. Using a 5-point scale ranging from 1 (very easy) to 5 (very difficult), the participating parent(s) rated the level of difficulty associated with his/her child's homework routine and/or morning/bedtime routine. A change of at least one category in the positive direction (e.g., 5 to a 4) constituted successful attainment of the child's treatment goal.

Results

Descriptive Results

Means and standard deviations of all predictor and outcomes variables are presented in Table 2.

Child variables. Youth demonstrated moderate levels of parent- and teacher-reported severity of ADHD symptoms ($M = 1.63$, $SD = 0.73$; $M = 1.51$, $SD = 0.62$, respectively) and functional impairment in the home and school settings ($M = 1.16$, $SD = 0.71$; $M = 1.42$, $SD = 0.63$, respectively).

Parent variables. Examination of parental cultural factors indicated mothers and fathers reported strong adherence to Latino culture, in terms of both behavioral ($M = 4.46$, $SD = 0.45$; $M = 4.16$, $SD = 0.57$, respectively) and cognitive ($M = 3.94$, $SD = 0.45$; $M = 4.02$, $SD = 0.44$, respectively) dimensions of acculturation, as well as moderate-to-high levels of ethnic identity ($M = 3.01$, $SD = 0.78$; $M = 2.90$, $SD = 0.78$, respectively). Mothers and fathers also reported moderate orientation to U.S. mainstream culture, related to both behavioral ($M = 2.44$, $SD = 0.87$; $M = 2.52$, $SD = 0.81$, respectively) and cognitive ($M = 2.81$, $SD = 0.55$; $M = 2.95$, $SD = 0.52$, respectively) dimensions of acculturation. Examination of parental attitudes and expectations regarding treatment indicated that mothers and fathers reported moderate adherence to the belief that children's problems do not require outside help ($M = 9.68$, $SD = 3.52$; $M = 9.08$, $SD = 3.52$, respectively) and perceived barriers to treatment ($M = 17.53$, $SD = 6.21$; $M = 16.27$, $SD = 5.41$, respectively), as well as low levels of stigmatized attitudes ($M = 8.05$, $SD = 3.06$; $M = 7.88$, $SD = 3.17$, respectively) and expectations for a speedy recovery ($M = 3.58$, $SD = 1.83$; $M = 3.04$, $SD = 1.31$, respectively).

Table 2
Descriptive Statistics for Continuous Predictor and Outcome Variables

Variables	<i>M</i>	<i>SD</i>	Range	α
<i>Child variables (n = 61 youth)</i>				
P1 DBD	1.63	0.73	0 – 3	.94
T1 DBD ⁺	1.51	0.62	0 – 3	.86
P1 FX home ⁺	1.16	0.71	0 – 3	.93
T1 FX school ⁺	1.42	0.63	0 – 3	.92
<i>Parent variables (n = 60 mothers, 26 fathers)</i>				
Mother ARSMA-II MOS	4.46	0.45	1 – 5	.82
Mother ARSMA-II AOS	2.44	0.87	1 – 5	.91
Mother MACVS MAV	3.94	0.45	1 – 5	.88
Mother MACVS AV	2.81	0.55	1 – 5	.70
Mother MEIM-R	3.01	0.78	1 – 4	.85
Mother TAQ fsr	9.68	3.52	4 – 20	.75
Mother TAQ stigma	8.05	3.06	5 – 25	.71
Mother TEQ barr	17.53	6.21	9 – 45	.84
Mother TEQ sr	3.58	1.83	2 – 10	$r = .78, p \leq .001$
Father ARSMA-II MOS	4.16	0.57	1 – 5	.83
Father ARSMA-II AOS	2.52	0.81	1 – 5	.92
Father MACVS MAV	4.02	0.44	1 – 5	.89
Father MACVS AV	2.95	0.52	1 – 5	.73
Father MEIM-R	2.90	0.78	1 – 4	.85
Father TAQ fsr	9.08	3.52	4 – 20	.72
Father TAQ stigma	7.88	3.17	5 – 25	.75
Father TEQ barr	16.27	5.41	9 – 45	.80
Father TEQ sr	3.04	1.31	2 – 10	$r = .74, p \leq .001$
<i>Attendance variables (n = 61 families)</i>				
Family attendance	7.23	1.24	0 – 8	
<i>Engagement variables (n = 61 families)</i>				
% homework completion	79.05	21.91	0 – 100	
TR parent engagement	4.28	0.85	1 – 5	
<i>Treatment response variables (n = 61 youth)</i>				
P2 DBD ⁺	1.27	0.59	0 – 3	.93
T2 DBD	1.15	0.63	0 – 3	.92
P2 FX home ⁺	0.73	0.44	0 – 3	.84
T2 FX school	0.99	0.56	0 – 3	.92
TR child improvement	3.99	0.92	1 – 5	
TR parent/family improvement	4.07	0.94	1 – 5	
% home goals achieved	67.82	29.19	0 – 100	
% school goals achieved	62.08	30.97	0 – 100	

Note. P1/P2 DBD/FX home = pre-/post-tx parent DBD ADHD mean/ADHD FX-Scale home impairment, T1/T2 DBD/FX school = pre-/post-tx teacher DBD ADHD mean/ADHD FX-Scale school impairment, MOS = ARSMA-II Latino Orientation Scale, AOS = ARSMA-II Anglo Orientation Scale, MAV = MACVS Mexican American Values Scale, AV = MACVS Mainstream Values Scale, fsr = TAQ family/self-reliance scale, stigma = TAQ stigma scale, barr = TEQ barriers scale, sr = TEQ speed of recovery scale, TR = therapist ratings, TR child = therapist-rated child improvement, TR parent/family = therapist-rated parent/family improvement.

⁺ Indicates missing data for some participants.

Attendance, retention, engagement, and treatment response. Families demonstrated high levels of attendance ($M = 7.23$, $SD = 1.24$), retention (yes = 95.1%), homework completion ($M = 79.05$, $SD = 21.91$), and therapist-reported engagement ($M = 4.28$, $SD = 0.85$). In addition, families demonstrated high levels of therapist-reported improvements in child ($M = 3.99$, $SD = 0.92$) and parent/family functioning ($M = 4.07$, $SD = 0.94$). Youth achieved the majority of their identified treatment goals in the home ($M = 67.82$, $SD = 29.19$) and school settings ($M = 62.08$, $SD = 30.97$). Youth also demonstrated low-to-moderate levels of parent- and teacher-reported ADHD symptomatology ($M = 1.27$, $SD = 0.59$; $M = 1.15$, $SD = 0.63$, respectively) and functional impairment in the home and school settings ($M = 0.73$, $SD = 0.44$; $M = 0.99$, $SD = 0.56$, respectively) post-treatment.

Preliminary Results

Based on current guidelines for managing multisource data (Holmbeck, Li, Schurman, Friedman, & Coakley, 2002), correlations between parent- and teacher-reported ADHD symptoms (DBD Rating Scale) were conducted. Given that pre- and post-treatment reports were not highly correlated ($r = .12$, *ns*; $r = .45$, *ns*, respectively), they were examined separately for all analyses.

Predictor variables and attendance, engagement, and treatment response outcomes.

Independent-samples t-tests were conducted to examine mean differences in attendance, engagement, and treatment response outcomes according to treatment type, child sex, and comorbidity. No significant differences emerged according to child sex. Results for treatment type and comorbidity are presented in Table 3. Significant differences in homework completion, therapist-reported improvements in child and parent/family functioning were found between ST ($M = 68.95$, $SD = 24.36$; $M = 3.70$, $SD = 1.12$; $M = 3.83$, $SD = 1.15$, respectively) and CAT ($M = 88.83$, $SD = 13.63$; $t(45.22) = -3.92$, $p \leq .001$; $M = 4.27$, $SD = 0.55$; $t(41.73) = -2.54$, $p \leq .05$; $M = 4.31$, $SD = 0.60$; $t(43.32) = -2.00$, $p \leq .05$, respectively), such that families participating in Treatment #2 demonstrated significantly higher homework completion and therapist-reported

Table 3
Results of Independent Samples T-Tests for Retention, Engagement, and Treatment Response Outcomes

Variables	Treatment Condition						95% CI for Mean Difference	t	df	d
	ST			CAT						
	M	SD	n	M	SD	n				
ATT	6.93	1.46	30	7.52	0.93	31	-1.21, 0.04	-1.87 ⁺	59	.48
% HW	68.95	24.36	30	88.83	13.63	31	-0.30, -0.10	-3.92***	45.22	1.01
TR eng	4.13	1.11	30	4.43	0.45	31	-0.75, 0.14	-1.38	38.11	.35
P2 DBD	1.38	0.64	27	1.18	0.55	31	-0.12, 0.50	1.23	56	.34
T2 DBD	1.15	0.57	30	1.14	0.69	31	-0.31, 0.33	0.06	59	.02
P2 FX home	0.83	0.52	27	0.64	0.35	31	-0.03, 0.42	1.71 ⁺	56	.43
T2 FX school	1.03	0.58	30	0.94	0.55	31	-0.20, 0.38	0.61	59	.16
TR child	3.70	1.12	30	4.27	0.55	31	-1.03, -0.12	-2.54*	41.73	.65
TR parent/family	3.83	1.15	30	4.31	0.60	31	-0.95, 0.00	-2.00*	43.32	.52
% home	63.33	31.98	30	72.16	25.99	31	-0.24, 0.06	-1.19	59	.30
% school	56.76	29.96	30	67.23	31.54	31	-0.26, 0.05	-1.33	59	.34
Child Comorbidity Status										
	Yes			No			95% CI for Mean Difference	t	df	d
	M	SD	n	M	SD	n				
ATT	7.39	0.78	18	7.16	1.40	43	-0.93, 0.48	-0.64	59	.20
% HW	81.62	12.61	18	77.97	24.85	43	-0.13, 0.06	-0.76	56.62	.19
TR eng	4.44	0.50	18	4.21	0.96	43	-0.71, 0.24	-0.99	59	.30
P2 DBD	1.53	0.70	18	1.16	0.51	40	-0.70, -0.05	-2.29*	56	.60
T2 DBD	1.11	0.68	18	1.16	0.61	43	-0.30, 0.41	0.31	59	.08
P2 FX home	0.98	0.51	18	0.62	0.36	40	-0.60, -0.13	-3.09**	56	.82
T2 FX school	1.01	0.63	18	0.98	0.54	43	-0.36, 0.28	-0.25	59	.05
TR child	4.06	0.68	18	3.97	1.00	43	-0.61, 0.43	-0.35	59	.11
TR parent/family	4.19	0.62	18	4.02	1.05	43	-0.70, 0.36	-0.65	59	.20
% home	0.70	0.24	18	0.67	0.31	43	-0.19, 0.14	-0.29	59	.11
% school	0.65	0.31	18	0.61	0.31	43	-0.22, 0.13	-0.46	59	.13
Treatment Retention										
	Yes			No			95% CI for Mean Difference	t	df	d
	M	SD	n	M	SD	n				
Child age	7.98	2.55	58	8.00	3.46	3	-3.05, 3.08	0.01	59	.01
Family SES	22.92	10.58	58	33.17	19.28	3	-2.78, 23.27	1.57	59	.66
P1 DBD	1.66	0.73	58	1.09	0.29	3	-1.42, 0.29	-1.32	59	1.03
T1 DBD	1.51	0.61	57	1.48	1.00	3	-0.77, 0.71	-0.08	58	.04
P1 FX home	1.20	0.71	57	0.54	0.28	3	-1.49, 0.17	-1.59	58	1.22
T1 FX school	1.44	0.62	57	1.07	0.69	3	-1.11, 0.38	-0.99	58	.56
M ARSMA MOS	4.46	0.46	57	4.41	0.21	3	-0.59, 0.49	-0.19	58	.14
M ARSMA AOS	2.38	0.82	57	3.46	1.39	3	0.08, 2.08	2.16*	58	.95
M MACVS MAV	3.96	0.44	57	3.56	0.64	3	-0.93, 0.13	-1.52	58	.73
M MACVS AV	2.81	0.53	57	2.69	0.93	3	-0.77, 0.53	-0.37	58	.16
M MEIM-R total	3.01	0.80	57	3.06	0.19	3	-0.32, 0.41	0.31	7.02	.09
M TAQ fsr	9.72	3.59	57	9.00	1.73	3	-4.92, 3.49	-0.34	58	.26
M TAQ stigma	8.09	3.10	57	7.33	2.52	3	-4.40, 2.89	-0.41	58	.27
M TEQ barr	17.49	6.34	57	18.33	3.06	3	-6.58, 8.26	0.23	58	.17
M TEQ sr	3.60	1.86	57	3.33	1.15	3	-2.44, 1.92	-0.24	58	.17

Note. ST = standard treatment, CAT = culturally-adapted treatment, ATT = attendance, % HW = % homework completed, TR eng = therapist-reported parental engagement, P1/P2 DBD/FX home = pre-/post-tx parent DBD ADHD mean/ADHD FX-Scale home impairment, T1/T2 DBD/FX school = pre-/post-tx teacher DBD ADHD mean/ADHD FX-Scale school impairment, TR child = therapist-reported child improvement, TR parent/family = therapist-reported parent/family improvement, % home/school = % of home-/school-based goals achieved, MOS = ARSMA-II Latino Orientation Scale, AOS = ARSMA-II Anglo Orientation Scale, MAV = MACVS Mexican American Values Scale, AV = MACVS Mainstream Values Scale, fsr = TAQ family/self-reliance scale, stigma = TAQ stigma scale, barr = TEQ barriers scale, sr = TEQ speed of recovery scale. Based on Cohen's (1988) guidelines, $d \geq .2$ = small, $d \geq .5$ = medium, and $d \geq .8$ = large.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. ⁺ $p \leq .10$.

improvements in child and parent/family functioning. The effect size of these differences were medium to large. Additionally, significant differences were found in post-treatment parent-reported ADHD symptomatology and functional impairment for youth with ($M = 1.53$, $SD = 0.70$; $M = 0.98$, $SD = 0.51$) and without comorbid diagnoses ($M = 1.16$, $SD = 0.51$; $t(56) = -2.29$, $p \leq .05$; $M = 0.62$, $SD = 0.36$, $t(56) = -3.09$, $p \leq .01$, respectively), such that youth with comorbid diagnoses demonstrated significantly higher rates of parent-reported ADHD symptomatology and functional impairment in the home setting post-treatment. Effect sizes of these differences were medium to large.

Correlational analyses were then conducted to examine relations between child sociodemographic/diagnostic variables (i.e., child age, SES, and severity of ADHD symptoms and functional impairment) and parental cultural variables and perceptions regarding treatment (i.e., ARSMA-II, MACVS, MEIM-R, TAQ, and TEQ subscales) with attendance and engagement outcomes (i.e., rates of attendance, homework completion, and therapist ratings of engagement), as well as treatment response outcomes (i.e., post-treatment ratings of ADHD symptomatology and functional impairment, therapist-reported improvements in child and parent/family functioning, and percentage of home- and school-based goals achieved). These results are presented in Table 4.

Regarding parental cultural factors and attendance and engagement outcomes, father MACVS AV was significantly positively associated with attendance, homework completion, and therapist-reported parental engagement ($r = .48$, $p \leq .01$; $r = .39$; $p \leq .05$, $r = .40$, $p \leq .05$, respectively), indicating that greater orientation to U.S. mainstream culture on fathers' cognitive measure of acculturation was related to increased family attendance, homework completion, and therapist-reported parental engagement.

Regarding child sociodemographic/diagnostic factors and treatment response outcomes, pre-treatment parent- and teacher-reported ADHD symptomatology were significantly positively associated with post-treatment parent- and teacher-reported ADHD symptomatology ($r = .49$, $p \leq$

Table 4

Results of Correlation Analyses Examining Child Sociodemographic/Diagnostic Variables and Parental Cultural Factors and Perceptions with Attendance, Engagement, and Treatment Response Outcomes

Child and Parent Variables	Attendance, Engagement, and Treatment Response Outcomes ^a										
	ATT	% HW	TR eng	P2 DBD	T2 DBD	P2 FX home	T2 FX school	TR child	TR parent/family	% home	% school
Child age	.04	-.05	-.06	-.09	-.03	-.003	.01	-.14	-.08	.22 ⁺	-.04
Family SES	-.09	-.15	-.11	.03	.06	-.18	.04	-.07	-.07	-.16	-.10
P1 DBD	.05	.19	.13	.49***	-.18	.40**	-.09	.05	.14	.13	.14
T1 DBD	-.19	-.14	.07	.14	.55***	-.18	.32*	.003	.07	.004	-.01
P1 FX home	.16	.25 ⁺	.19	.40**	-.29*	.55***	-.12	.01	.11	.15	.18
T1 FX school	-.01	-.04	.07	.01	.34**	-.04	.41***	.05	.13	.003	-.13
Mother ARSMA-II MOS	.01	-.04	-.03	.23 ⁺	-.11	.09	-.16	-.09	.03	-.22 ⁺	-.08
Mother ARSMA-II AOS	-.12	-.07	-.25 ⁺	-.27*	.19	-.10	.16	-.09	-.13	-.17	-.11
Mother MACVS MAV	-.07	.02	.14	-.03	.28*	.15	.18	.21 ⁺	.11	.11	-.12
Mother MACVS AV	.09	.11	.03	.06	-.03	.10	.02	.04	-.01	-.04	-.10
Mother MEIM-R total	-.06	-.03	-.07	.19	-.001	.18	.01	-.05	-.02	-.18	.07
Mother TAQ fsr	-.04	-.11	.03	-.02	.18	.01	.28*	-.02	-.18	-.01	-.21 ⁺
Mother TAQ stigma	.22 ⁺	.22 ⁺	.07	-.10	-.01	-.04	.26*	.09	.08	.03	.09
Mother TEQ barr	.14	.13	.02	-.21	-.14	-.13	-.04	.04	.01	-.12	.03
Mother TEQ sr	-.02	.09	-.03	-.07	.03	-.01	-.05	-.01	-.02	.03	-.12
Father ARSMA-II MOS	.01	.03	.12	.29	.01	.14	-.04	.04	.28	-.13	.06
Father ARSMA-II AOS	.25	.25	.16	-.39*	-.09	-.32	-.09	.26	.06	-.03	-.20
Father MACVS MAV	.19	.14	.13	-.15	-.20	.26	.20	.07	.14	.05	.06
Father MACVS AV	.48**	.39*	.40*	.16	-.27	.19	-.19	.24	.37 ⁺	.14	.05
Father MEIM-R total	.001	-.13	-.16	-.22	.12	-.20	.03	-.12	-.16	-.16	.001
Father TAQ fsr	.26	.20	.07	-.30	-.19	-.20	-.14	.20	.21	.22	-.23
Father TAQ stigma	.06	-.12	-.14	-.26	-.24	-.27	-.19	-.04	-.13	.27	.08
Father TEQ barr	.25	.18	.07	-.17	-.25	-.18	-.18	-.02	.06	.20	.06
Father TEQ sr	.16	.12	-.12	-.12	-.28	-.25	-.22	.08	.05	.08	-.11

Note. ATT = attendance, % HW = % homework completed, TR eng = therapist-reported parental engagement, P1/P2 DBD/FX home = pre-/post-tx parent DBD ADHD mean/ADHD FX-Scale home impairment, T1/T2 DBD/FX school = pre-/post-tx teacher DBD ADHD mean/ADHD FX-Scale school impairment, TR child = therapist-reported child improvement, TR parent/family = therapist-reported parent/family improvement, % home/school = % of home-/school-based goals achieved, MOS = ARSMA-II Latino Orientation Scale, AOS = ARSMA-II Anglo Orientation Scale, MAV = MACVS Mexican American Values Scale, AV = MACVS Mainstream Values Scale, MEIM-R total = MEIM-R total ethnic identity, TAQ fsr = TAQ family/self-reliance scale, TAQ stigma = TAQ stigma scale, TEQ barr = TEQ barriers scale, TEQ sr = TEQ speed of recovery scale.

^a*n* = 26 – 61.

p* ≤ .05. *p* ≤ .01. ****p* ≤ .001. ⁺*p* ≤ .10.

.001; $r = .40$, $p \leq .01$; $r = .55$, $p \leq .001$; $r = .32$, $p \leq .05$, respectively). Similarly, pre-treatment parent- and teacher-reported functional impairment was significantly positively associated with post-treatment parent- and teacher-reported functional impairment ($r = .40$, $p \leq .01$; $r = .55$, $p \leq .001$; $r = .34$, $p \leq .01$; $r = .41$, $p \leq .001$, respectively), indicating that increased pre-treatment parent- and teacher-reported ADHD symptom severity and functional impairment in the home and school settings were related to increased parent- and teacher-reported ADHD symptomatology and functional impairment in the home and school settings post-treatment. However, pre-treatment parent-reported functional impairment was significantly negatively associated with post-treatment teacher-reported ADHD symptomatology ($r = -.29$, $p \leq .05$), indicating that increased pre-treatment severity of functional impairment in the home setting was related to decreased levels of teacher-reported ADHD symptomatology post-treatment.

Regarding parental cultural factors and treatment response outcomes, mother and father ARSMA-II AOS scales were significantly negatively associated with post-treatment parent-reported ADHD symptomatology ($r = -.27$, $p \leq .05$; $r = -.39$, $p \leq .05$, respectively), indicating that greater orientation to U.S. mainstream culture on parents' behavioral measure of acculturation was related to decreased levels of post-treatment parent-reported ADHD symptomatology. Additionally, mother MACVS MAV was significantly positively associated with post-treatment teacher-reported ADHD symptomatology ($r = .28$, $p \leq .05$), indicating that greater orientation to Latino values on mothers' cognitive measure of acculturation was related to increased teacher-reported ADHD symptomatology post-treatment. Regarding parental perceptions and treatment response outcomes, mothers' family self-reliance and stigma TAQ subscales were significantly positively associated with post-treatment teacher-reported functional impairment ($r = .28$, $p \leq .05$; $r = .26$, $p \leq .05$, respectively), indicating that greater endorsement of the belief that children's problems do not require outside help and more stigmatized attitudes among mothers were related to higher levels of functional impairment in the school setting post-treatment.

Predictor variables and treatment retention. Independent-samples t-tests were conducted to examine differences in child sociodemographic/diagnostic variables and parental cultural variables and perceptions regarding treatment according to retention status, results of which are presented in Table 3. Given the small sample size of fathers of families who were not retained in treatment ($n = 1$), only mother data was examined. Significant differences in mother AOS were found between those who were retained in treatment ($M = 2.38$, $SD = 0.82$) and those who dropped out of treatment prematurely ($M = 3.46$, $SD = 1.39$; $t(58) = 2.16$, $p \leq .05$), such that families who were not retained in treatment demonstrated significantly higher rates of orientation to U.S. mainstream culture on the behavioral measure of acculturation. The effect size of this difference was large. Chi-square tests for independence also were conducted to examine differences in treatment type, child sex, and comorbidity according to retention status. No significant differences were found.

Attendance, retention, and engagement variables and treatment response outcomes.

Another set of correlational analyses was then conducted to examine the relations between attendance, engagement, and treatment response outcomes, results of which are presented in Table 5. Results indicated that attendance and homework completion were significantly positively associated with therapist-rated child ($r = .62$, $p \leq .001$; $r = .57$, $p \leq .001$, respectively) and parent/family improvement ($r = .61$, $p \leq .001$; $r = .60$, $p \leq .001$, respectively) and home- ($r = .61$, $p \leq .001$; $r = .60$, $p \leq .001$, respectively) and school-based goals achieved ($r = .32$, $p \leq .01$; $r = .35$, $p \leq .01$, respectively), indicating that higher rates of family attendance and homework completion were related to increased therapist-reported improvements in child and parent/family functioning and percentage of home- and school-based goals achieved. Attendance and homework completion also were significantly negatively associated with post-treatment teacher-reported ADHD symptomatology ($r = -.36$, $p \leq .01$; $r = -.29$, $p \leq .05$, respectively), indicating that increased family attendance and homework completion were related to decreased teacher-reported ADHD symptomatology post-treatment. Finally, therapist-rated parental engagement was significantly

Table 5

Results of Correlation Analyses Examining Attendance and Engagement Predictor Variables with Treatment Response Outcome Variables and Independent-Samples T-Tests Treatment Response Outcomes by Retention Status

Attendance and Engagement Variables	Treatment Response Outcomes ^a							
	P2 DBD	T2 DBD	P2 FX home	T2 FX school	TR child	TR parent/family	% home	% school
ATT	-.19	-.36**	-.23 ⁺	-.20	.62***	.61***	.61***	.32**
% HW completed	-.05	-.29*	-.10	-.16	.57***	.60***	.60***	.35**
TR parental engagement	.09	-.15	-.25 ⁺	-.06	.80***	.82***	.82***	.22 ⁺

Treatment Response Outcomes	Retention Status									
	Yes			No			95% CI	t	df	d
	M	SD	n	M	SD	n				
T2 DBD	1.12	0.63	58	1.60	0.48	3	-0.26, 1.21	1.29	59	.86
T2 FX school	0.97	0.57	58	1.25	0.31	3	-0.39, 0.94	0.82	59	.61
TR child	4.13	0.69	58	1.33	0.58	3	-3.61, -1.98	-6.86***	59	4.39
TR parent/family	4.22	0.71	58	1.33	0.58	3	-3.72, -2.05	-6.92***	59	4.46
% home	70.47	26.89	58	16.67	28.87	3	-0.86, -0.22	-3.37***	59	1.93
% school	62.98	30.67	58	44.67	38.68	3	-0.55, 0.18	-1.00	59	.52

Note. ATT = attendance, TR = therapist ratings, P2 DBD/FX home = post-tx parent DBD ADHD mean/ADHD FX-Scale home impairment, T2 DBD/FX school = post-tx teacher DBD ADHD mean/ADHD FX-Scale school impairment, TR child = therapist-rated child improvement, TR parent/family = therapist-rated parent/family improvement, % home = % of home-based goals achieved, % school = % of school-based goals achieved. Based on Cohen's (1988) guidelines, $d \geq .2$ = small, $d \geq .5$ = medium, and $d \geq .8$ = large.

^a $n = 58 - 61$.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. ⁺ $p \leq .10$.

positively associated with therapist-reported child and parent/family improvement and home-based goals ($r = .80, p \leq .001$; $r = .82, p \leq .001$; $r = .82, p \leq .001$, respectively), indicating that increased homework completion was related to increased therapist-reported improvements in child and parent/family functioning and a greater percentage of home-based goals achieved.

Independent-samples t-tests also were conducted to examine differences in treatment response outcomes according to retention status, results of which are presented in Table 5. Given that parent-reported post-treatment ratings of ADHD symptomatology and functional impairment were not obtained from those who fell out of treatment prematurely, those treatment response outcomes were excluded from the analyses. Significant differences in percentage of home-based goals achieved and therapist-rated improvements in child and parent/family functioning were found between those who were retained in treatment ($M = 70.47, SD = 26.89$; $M = 4.13, SD = 0.69$; $M = 4.22, SD = 0.71$, respectively) and those who dropped out of treatment prematurely ($M = 16.67, SD = 28.86$; $t(59) = -3.37, p \leq .001$; $M = 1.33, SD = 0.58$; $t(59) = -6.86, p \leq .001$; $M = 1.33, SD = 0.58$; $t(59) = -6.92, p \leq .001$, respectively), indicating that families who were not retained in treatment demonstrated significantly lower rates of home-based goals achieved and therapist-rated improvements in child and parent/family functioning. Effect sizes of these differences were large.

Primary Results

Based on the significant independent variables that emerged from the preliminary analyses, follow-up hierarchical multiple regression analyses were conducted, all of which were interpreted at the last step that produced a significant change in R squared.¹ Hierarchical multiple regressions were only conducted for outcome variables that were significantly correlated with

¹ Secondary checks were conducted to examine specific treatment condition and child sociodemographic/diagnostic variables that emerged as significant in the preliminary analyses as covariates. Results were largely consistent. Thus, in order to preserve power and eliminate multicollinearity concerns, covariates were excluded from the primary analyses.

more than one predictor variable. In order to examine post-treatment parent- and teacher-reported ADHD symptomatology and functional impairment as treatment response outcomes, medicated or unmedicated pre-treatment ratings were controlled for in step 1, depending on the child's medication status post-treatment.

Hypothesis 1- Parental cultural factors and treatment participation outcomes. In

order to test the first set of hypotheses related to parental cultural factors and attendance, retention, engagement, and treatment response outcomes, hierarchical multiple regression analyses were conducted for post-treatment parent-reported ADHD symptomatology. In order to preserve power, mother and father acculturation were examined in separate regression analyses (see Table 6). For each regression, pre-treatment parent-reported ADHD symptomatology was entered into step 1, and mother or father ARSMA-II AOS was entered into step 2. Results indicated that the mother and father acculturation factors that were entered into step 2 explained an additional 6.9% and 17.8% of the respective variances in ADHD symptomatology post-treatment, which were significant changes ($F(1, 54) = 5.49, p \leq .05$; $F(1, 22) = 6.89, p \leq .05$, respectively). The overall models were significant ($F(2, 54) = 12.84, p \leq .001$; $F(2, 22) = 8.35, p \leq .01$) and explained 32.2% and 43.1% of the respective total variances in ADHD symptomatology. The effect sizes of the respective final models were small to medium. In the model examining mother acculturation, examination of individual factors indicated that both pre-treatment parent-reported ADHD symptomatology and mother ARSMA-II AOS were significant predictors ($\beta = .50, p \leq .001$; $\beta = -.26, p \leq .05$; respectively). In the model examining father acculturation, examination of individual factors indicated that both pre-treatment parent-reported ADHD symptomatology and father ARSMA-II AOS were significant predictors ($\beta = .53, p \leq .01$; $\beta = -.42, p \leq .05$; respectively). This suggests that increased parent-reported ADHD symptomatology at baseline was related to increased parent-reported ADHD symptomatology post-treatment, and greater orientation to U.S. mainstream culture on parents' behavioral

Table 6

Summary of Hierarchical Multiple Regression Analyses for Parental Cultural Factors and Perceptions Regarding Treatment Predicting Treatment Response Outcomes

Variables	P2 DBD ^a		P2 DBD ^b		T2 FX school ^c	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
	β		β		β	
P1 DBD med/unmed	.50**	.50**	.50**	.53**		
T1 FX school med/unmed					.61***	.56***
Mother ARSMA-II AOS		-.26*				
Father ARSMA-II AOS				-.42*		
Mother TAQ fsr						.22*
Mother TAQ stigma						.11
R^2	.25***	.32***	.25**	.43**	.37***	.43***
ΔR^2	.25***	.07*	.25**	.18*	.37***	.06*
f^2		.10		.31		.11

Note. P1 DBD med/unmed = pre-tx parent DBD medicated/unmedicated ADHD mean, T1 FX school med/unmed = pre-tx teacher ADHD FX-Scale medicated/unmedicated school impairment, AOS = ARSMA-II Anglo Orientation Scale, TAQ fsr = TAQ family/self-reliance scale, TAQ stigma = TAQ stigma scale, P2 DBD = post-tx parent ADHD mean, T2 FX school = post-tx teacher ADHD FX-Scale school impairment. Based on Cohen's (1988) guidelines, $f^2 \geq .02$ = small, $f^2 \geq .15$ = medium, and $f^2 \geq .35$ = large.

^a $n = 58$. ^b $n = 26$. ^c $n = 60$.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. + $p \leq .10$.

measures of acculturation was related to decreased parent-reported ADHD symptomatology post-treatment.

Hypothesis 2 - Parental perceptions and treatment participation outcomes. In order to test the second set of hypotheses related to parental attitudes and expectations regarding treatment and attendance, retention, engagement, and treatment response, hierarchical multiple regression analysis was conducted for post-treatment functional impairment in the school setting (see Table 6). Pre-treatment functional impairment in the school setting was entered into step 1, and mother TAQ fsr and stigma subscales were entered into step 2. The parental perceptions regarding treatment that were entered into step 2 explained an additional 6.4% of the variance in functional impairment in the school setting, which was a significant change ($F(2, 56) = 3.16, p \leq .05$). The overall model was significant ($F(3, 56) = 14.27, p \leq .001$) and explained 43.3% of the variance in functional impairment in the school setting. The effect size of the final model was small. Examination of individual factors indicated that both pre-treatment teacher-reported functional impairment and mother TAQ fsr were significant predictors ($\beta = .56, p \leq .001$; $\beta = .22, p \leq .05$, respectively), suggesting that increased teacher-reported functional impairment in the school setting at baseline and greater endorsement of the belief that children's problems do not require outside help among mothers were related to higher levels of functional impairment in the school setting post-treatment.

Hypothesis 3 – Attendance, retention, and engagement and treatment response outcomes. In order to test the third set of hypotheses regarding attendance, retention, and engagement related to treatment response outcomes, hierarchical multiple regressions were conducted for 1) post-treatment teacher-reported ADHD symptomatology, 2) therapist ratings of improvements in child and 3) parent/family functioning, and percentage of 4) home- and 5) school-based goals achieved (see Table 7). Regarding 1) post-treatment teacher-reported ADHD symptomatology, pre-treatment teacher-reported ADHD symptomatology entered into step 1, attendance was entered into step 2, and homework completion was entered into step 3. The

Table 7

Summary of Hierarchical Multiple Regression Analyses for Treatment Retention and Engagement Factors Predicting Treatment Response Outcomes

Variables	T2 DBD			TR child		TR parent/family		% home		% school	
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
	β			β		β		β		β	
T1 DBD med/unmed	.60***	.55***	.56***								
ATT		-.26**	-.37 ⁺	.29*	.11	.26 ⁺	-.04	.004	-.11	.32**	.07
RET				.46***	.06	.48***	.05	.40*	.16		
% HW			.13		-.10		.05		-.05		.29
TR eng					.74***		.78***		.44*		
R ²	.36***	.43***	.43***	.48***	.65***	.48***	.68***	.16**	.22**	.10**	.12*
ΔR^2	.36***	.07**	.004	.48***	.17***	.48***	.20***	.16**	.06	.10**	.02
f^2		.11			.48		.60	.19		.11	

Note. T1 DBD med/unmed = pre-tx teacher DBD medicated/unmedicated ADHD mean, ATT = attendance, RET = retention, % HW = % homework completed, TR eng = therapist-reported parental engagement, T2 DBD = post-tx teacher DBD ADHD mean, TR child = therapist-reported child improvement, TR parent/family = therapist-reported parent/family improvement, % home/school = % of home-/school-based goals achieved. Based on Cohen's (1988) guidelines, $f^2 \geq .02$ = small, $f^2 \geq .15$ = medium, and $f^2 \geq .35$ = large.

$n = 61$.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. ⁺ $p \leq .10$.

attendance variable that was entered into step 2 explained an additional 6.6% of the variance in ADHD symptomatology, which was a significant change ($F(1, 58) = 6.64, p \leq .01$). The overall model was significant, ($F(2, 58) = 21.64, p \leq .001$) and explained 42.7% of the variance in post-treatment teacher-reported ADHD symptomatology. The effect size of the final model was small. Examination of individual factors indicated that both pre-treatment teacher-reported ADHD symptomatology and attendance were significant predictors ($\beta = .55, p \leq .001$; $\beta = -.26, p \leq .01$, respectively), suggesting that increased teacher-reported ADHD symptomatology at baseline and decreased rates of family attendance were related to higher levels of teacher-reported ADHD symptomatology post-treatment. Regarding 2) therapist-rated improvements in child 3) and parent/family functioning, and 4) percentage of home-based goals achieved, attendance and retention were entered into step 1, and homework completion and therapist-rated parental engagement were entered into step 2. Regarding improvements in child and parent/family functioning, the engagement variables that were entered into step 2 explained an additional 16.7% and 19.6% of the respective variances, which were significant changes ($F(2, 56) = 13.41, p \leq .001$; $F(2, 56) = 16.98, p \leq .001$, respectively). The overall models were significant ($F(4, 56) = 26.06, p \leq .001$; $F(4, 56) = 29.26, p \leq .001$, respectively) and explained 65.1% and 67.6% of the total respective variances in improvements in child and parent/family functioning. The effect sizes of the final models were large. In both regressions, examination of individual factors indicated that therapist-rated parental engagement was a significant predictor ($\beta = .74, p \leq .001$; $\beta = .78, p \leq .001$, respectively), suggesting that increased levels of therapist-rated parental engagement were related to increased levels of therapist-rated improvements in child and parent/family functioning. Regarding percentage of home-based goals achieved, the attendance and retention variables that were entered into step 1 explained 16.2% of the total variance, which was a significant change and overall model ($F(2, 58) = 5.59, p \leq .01$). The effect size of the final model was medium. Examination of individual factors indicated that retention was a significant predictor ($\beta = .40, p \leq .05$), suggesting that increased levels of retention were related to greater

percentage of home-based goals achieved. Regarding 5) percentage of school-based goals achieved, attendance was entered into step 1, and homework completion was entered into step 2. Attendance explained 10.0% of the total variance, which was a significant change and overall model ($F(1, 59) = 6.52, p \leq .01$). The effect size of the final model was small. Attendance was a significant predictor ($\beta = .32, p \leq .01$), suggesting that higher rates of attendance were related to greater percentage of school-based goals achieved.

Discussion

In order to improve current understanding of factors that impact Latino family participation in a psychosocial intervention for childhood ADHD, the goal of the current study was to examine the impact of parental cultural factors and attitudes and expectations regarding treatment on Latino family participation in treatment, including attendance, retention, engagement, and treatment response outcomes, after controlling for the effects of significant treatment condition and child sociodemographic/diagnostic variables. Research suggests that Latino youth are less likely than European American youth to receive ADHD assessment and treatment despite comparable prevalence rates of the disorder (Bernardi et al., 2012; Bird et al., 2008; Morgan et al., 2014; Pastor & Reuben, 2008). Additionally, Latino families who pursue child mental health services are at increased risk of premature termination (Huey, 1998; La Roche, 2002; Miranda et al., 1996; Sue, 1998), which contributes to poorer treatment outcomes and compromised treatment effectiveness (Barrett et al., 2008). Better understanding of the way in which parental cultural factors and perceptions influence Latino family participation in treatment will aid researchers and clinicians in working to mitigate these existing mental health care disparities and promote the use of more culturally responsive assessment and psychosocial treatment for childhood ADHD in Latino families (Eiraldi & Diaz, 2010).

Parental Cultural Factors and Treatment Participation Outcomes

The first prediction that greater orientation to Latino culture on behavioral and cognitive measures of acculturation and higher levels of ethnic identity among parents would predict poorer levels of attendance, retention, engagement, and treatment response outcomes, whereas greater orientation to U.S. mainstream culture and lower levels of ethnic identity would predict improved treatment outcomes, was partially supported. Regarding treatment attendance and engagement, fathers' endorsement of U.S. mainstream values was related to higher levels of family attendance, homework completion, and therapist-reported parental engagement. These findings are supported by previous literature documenting the relation between orientation to U.S. mainstream culture and other proxy measures of acculturation (e.g., greater length of time in U.S. and English language preference) with increased service use (Keyes et al., 2012; Lara et al., 2005; Nandi et al., 2008). It is noteworthy that fathers' acculturation status, in particular, was related to family attendance and engagement in treatment, especially given the smaller percentage of participating fathers. Research suggests that acculturation is one of the many factors that impacts Latino fathers' involvement with their children, as more traditionally oriented fathers may be less likely to be involved in caregiving responsibilities (see Cabrera & Bradley, 2012 for a review) or support the decision to seek treatment for child behavioral issues (McCabe, Yeh, Garland, Lau, & Chavez, 2005). Given that Latino families have emphasized the need to involve fathers and extended family members in treatment for child behavioral issues (McCabe et al., 2005) and that father involvement in parent training has been linked to improved child outcomes immediately following treatment (e.g., Bagner, 2013; Lundahl, Tollefson, Risser, & Lovejoy, 2007) and at follow-up (e.g., Bagner & Eyberg, 2003), better understanding and consideration of the factors that impact Latino father engagement is needed.

In contrast to these findings, results also indicated that mothers of families who dropped out of treatment prematurely demonstrated significantly higher levels of orientation to U.S.

mainstream culture on the behavioral measure of acculturation than those retained in treatment. That said, it is impossible to draw conclusions from such a small number of families who failed to complete treatment ($n=3$), and the significance difference in sample size between the two groups that were examined should certainly be considered when interpreting these results. However, this finding may point to the heterogeneity that exists within the Latino population in the U.S. (Ennis, Ríos-Vargas, & Albert, 2011; Martinez & Villarruel, 2009). From a service utilization perspective, we expected these families to complete treatment successfully, yet the cultural characteristics of the current sample may have impacted these families' ability or desire to remain in treatment, including parents' strong behavioral orientation to traditional Latino culture. Thus, the families who dropped out of treatment prematurely may have fared better in a less traditionally, Latino-oriented group of parents, particularly related to cultural practices and customs. These findings highlight the need to assess and consider parental acculturation status when identifying the optimal treatment setting and approach for families participating in psychosocial treatment for childhood ADHD.

Regarding parental cultural factors and treatment response outcomes, greater orientation to U.S. mainstream culture on parents' behavioral measure of acculturation was related to decreased parent-reported ADHD symptomatology post-treatment. Similarly, results indicated that mothers' endorsement of traditional Latino values was related to increased teacher-reported symptomatology post-treatment. However, results indicated that both mother and father behavioral acculturation orientations and parent-reported ADHD symptomatology pre-treatment proved to be the most salient predictors of parent-reported ADHD symptomatology post-treatment. These findings are consistent with existing literature documenting the relation between more severe child behavioral problems pre-treatment and poorer treatment outcomes among children receiving mental health services (Corkum et al., 2015; Reyno & McGrath, 2006), as well as research indicating that Latino individuals more closely oriented to U.S. mainstream society demonstrate improved mental health care service utilization outcomes (Keyes et al., 2012; Nandi

et al., 2008). Although the research on caregiver acculturation status has presented mixed findings (e.g., Ho et al., 2006; Kim et al., 2015; McCabe, 2002a), researchers emphasize the crucial need to examine parental cultural factors in the context of PMT in order to better understand parenting behaviors and service utilization outcomes for Latino families participating in child mental health services (Barker, Cook, & Borrego, 2010; McCabe et al., 2005). It is noteworthy that the effect size for father behavioral acculturation status was larger than that for mothers, which may highlight the effects of father cultural factors in the context of treatment response outcomes for Latino families participating in PMT for childhood ADHD.

In the context of mental health and treatment, the effects of acculturation and related cultural constructs are complex. Although adherence to one's ethnic culture of origin has been associated with various positive psychosocial outcomes for Latino individuals (Gonzales, Fabrett, & Knight, 2009), it also presents challenges for service utilization. In a similar way, adherence to U.S. mainstream has been linked to negative health and educational outcomes in research examining the "immigrant paradox," a pattern of findings in which increased length of time in the U.S. is associated with more psychosocial problems for Latino individuals (García Coll & Marks, 2012; Vega, Sribney, Aguilar-Gaxiola, & Kolody, 2004), but it also seems to aid health care service utilization (Keyes et al., 2012; Lara et al., 2005; Nandi et al., 2008). Given that more traditionally-oriented families appear to be at increased risk of experiencing poorer treatment outcomes, these findings support recent efforts to improve the way in which existing evidence-based treatments engage families from diverse sociocultural backgrounds, such as the use of linguistically-appropriate, culturally-adapted treatments and strategies to reduce the effects of environmental stressors and barriers to treatment (Barker et al., 2010; Bernal, Jiménez-Chafey, & Domenech Rodríguez, 2009; Calzada, 2010; Lau, 2006).

Parental Perceptions and Treatment Participation Outcomes

The second prediction that greater endorsement of specific parental attitudes and expectations regarding treatment (i.e., belief that problems should be handled within the family unit, stigmatized attitudes related to mental health treatment, perceived barriers to treatment, and expectations for a speedy recovery in treatment) would predict poorer levels of attendance, retention, engagement, and treatment response outcomes was partially supported. Results indicated that mothers' belief that children's behavioral and emotional problems should be handled within the family and higher levels of stigmatized attitudes towards mental illness and treatment were related to higher levels of teacher-reported functional impairment in the school setting post-treatment, indicating lesser improvement in functioning. However, both baseline functional impairment in the school setting and the belief that children's mental health problems solely should be managed by one's family members proved to be the most salient predictors of teacher-reported functional impairment in the school setting post-treatment. These results are supported by previous work documenting the detrimental effects of severe child behavioral problems pre-treatment (Corkum et al., 2015; Reyno & McGrath, 2006) and mental health stigma on treatment outcomes among families participating in child mental health services (Alvidrez, 1999; Barker et al., 2010; Corrigan & Watson, 2007; McCabe, 2002a; Nadeem et al., 2007; Ojeda & McGuire, 2006; Thompson et al., 2002; Villatoro et al., 2014). These results seem to point to underlying value of familism, a multidimensional cultural construct that centers on prioritizing family needs over individual desires, strong family relationships and interconnectedness, dependence on one's family, and strong family loyalty (Steidel & Contreras, 2003), which may make Latino families less amenable to seeking or receiving formal mental health services. Thus, results suggest that it may be especially important for mental health care providers to take this cultural value into account and assess for stigmatized attitudes when conducting parent training

with Latino families in order to promote positive treatment outcomes (Barker et al., 2010; Calzada, 2010), including improvements in child functioning.

Attendance, Retention, and Engagement and Treatment Response Outcomes

Finally, the third prediction that increased levels of attendance, retention, and engagement in treatment would predict improved treatment response outcomes was largely supported. Higher levels of attendance and engagement (i.e., homework completion and therapist-rated parental engagement) were related to higher levels of therapist-rated improvements in child and parent/family functioning and the percentage of home- and school-based goals achieved, as well as lower levels of teacher-reported ADHD symptomatology post-treatment. Results also indicated that those who were retained in treatment demonstrated significantly higher rates of home-based goals achieved and therapist-rated improvements in child and parent/family functioning. When examining the relation between therapist-rated parental engagement and improvements in child and parent/family functioning, it is important to consider the fact that the same individuals rated both constructs, which may have confounded these constructs to an extent. That said, these results are consistent with existing literature highlighting the detrimental effects of premature termination and poor engagement on treatment response outcomes among youth and families participating in child mental health services (Barrett et al., 2008; de Haan et al., 2013; Ingoldsby, 2010). Although therapist-rated parental engagement accounted for more of the variance in therapist-rated improvements in child and parent/family functioning than the attendance and retention variables as expected, teacher-reported ADHD symptomatology pre-treatment, attendance, and retention also proved to be significant individual predictors of teacher-reported ADHD symptomatology post-treatment and percentage of home-based goals achieved. Similar to that of existing literature (e.g., Nix et al., 2009), these findings suggest that in some cases, the quality of parental participation in treatment and parental engagement may be more important predictors of treatment response outcomes than other attendance-related variables.

However, child characteristics (i.e., baseline symptom severity), attendance, and retention also are important variables to consider when examining treatment response among youth and families (Corkum et al., 2015; de Haan et al., 2013; Reyno & McGrath, 2006).

Limitations

Several limitations should be noted. First, the current study included a fairly homogenous sample of Latino youth and their families, largely representing a more traditionally-oriented, lower SES community of Mexican-American families living in an urban setting. This likely contributed to the relatively limited variability found within measures examining parental cultural factors and perceptions regarding treatment, and caution is warranted in generalizing these findings to other Latino subgroups in other geographical areas. Future studies should aim to replicate these findings in a larger, more representative sample of Latino youth and their families, including a greater number of participating fathers and extended family members. However, it is important to note that due to its limited focus, the current study was able to provide valuable knowledge on factors that influence family participation in psychosocial treatment for childhood ADHD in an underrepresented community of youth and families. Utilization of a larger sample and longitudinal design also would allow for more sophisticated data analytic procedures and improved understanding of how these youth and their families function in the long-term. Hopefully, this would also allow for examination of some of the underlying mechanisms of Latino family participation in treatment, such as cultural factors and perceptions related to treatment.

Finally, limitations in the measurement of parental engagement and improvements in child and parent/family functioning should be noted. Although the current study attempted to limit individual bias by averaging treatment facilitators' ratings of parental engagement at the end of treatment, this may have contributed to retrospective bias in reporting. Future studies should aim to include facilitators' ratings of engagement and improvement at multiple points throughout

the course of treatment. Additionally, the same individuals rated both parental engagement and improvements in child and parent/family functioning, which may have accounted for their strong associations. Future studies should aim to include more objective measures of engagement and improvements in child and parent/family, such as assessing other indicators of engagement and treatment response and integrating others' ratings.

Implications and Future Directions

Despite these limitations, the current study has several important implications and presents some exciting areas for future research. First, these findings bring attention to the importance of assessing parental cultural factors and perceptions related to treatment among Latino families participating in child mental health services, as these variables may be associated with or predict attendance, retention, engagement, and treatment response outcomes.

Additionally, results suggest that acculturation, stigmatized attitudes related to mental health and treatment, and the belief that children's behavioral concerns should be managed within the family unit are important constructs to consider. In order to develop a better understanding of the various factors that likely contribute to Latino family participation in child mental health services and identify families who may be in need of additional supports or services, future studies should aim to assess related constructs and other parental factors, such as endorsement of specific values related to both traditional Latino (e.g., familism, religiosity, traditional gender roles) and U.S. mainstream cultures (e.g., independence, personal achievement, material success; Knight et al., 2010), as well as acculturation stress and conflict, perceived social support, parental stress, treatment acceptability, and therapeutic alliance.

Findings also suggest that parental cultural factors should be assessed at baseline in order to determine the best therapist and treatment fit (i.e., culturally-adapted vs. standard treatment). Given the significant linguistic and cultural variability that exists within the Latino population in the U.S., as well as families' unique characteristics and identified needs, a one-size-fits-all

treatment approach is not appropriate or possible. Thus, careful consideration should be made in determining the best treatment approach for individual Latino families seeking psychosocial treatment for childhood ADHD in order to optimize treatment outcomes, and future studies should aim to improve understanding of the specific needs of different Latino subgroups in the U.S. Furthermore, findings from the current study demonstrate the importance of assessing acculturation from a multidimensional, bidirectional perspective, as cognitive and behavioral acculturation related to both U.S. mainstream culture and Latino culture appear to demonstrate unique effects on Latino family participation in child mental health services.

Finally, results from the current study also highlight the need for interventions aimed at reducing ADHD symptomatology and improving child functioning to promote both attendance/retention and engagement in treatment. The quality of treatment participation, as opposed to simply attending treatment, seems to be vital to promoting positive treatment response outcomes for Latino youth and their families. Thus, future studies should aim to determine the most effective ways of promoting high levels of attendance, retention, and engagement in treatment, for which culturally-adapted interventions may be appropriate and necessary. Despite the challenging mental health care disparities that exist for Latino youth and their families, results from the current study demonstrate how well Latino youth and their families do in treatment when they are able to access treatment and remain engaged. Thus, in order to promote positive outcomes for Latino youth and their families, health care providers and policy makers must continue to work to address the factors that influence accessibility and quality of existing services.

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